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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,268	02/03/2004	Heng Liao	PAT 2241-2 US	2322
26123 7590 07/13/2007 BORDEN LADNER GERVAIS LLP WORLD EXCHANGE PLAZA 100 QUEEN STREET SUITE 1100 OTTAWA, ON K1P 1J9 CANADA			EXAMINER TRAN, TUNG Q	
			ART UNIT 2616	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/771,268	Applicant(s) LIAO ET AL.	
	Examiner Tung Q. Tran	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-2, and 4-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-13 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/3/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claim 3, drawn to Ethernet over SONET/SDH System, classified in class 370, subclass 401.
 - II. Claims 1-2 and 4-13, drawn to method and apparatus of packet grooming and aggregation within Ethernet over SONET/SDH System, classified in class 370, subclass 466.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the SONET/SDH System does not require specific functions of apparatus of packet grooming and aggregation such as extracting a search key from the client frame via the header unit. The subcombination has separate utility such as ingress flow database, performing a wildcard linear search.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all

the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Mr. Behmann Curtis on June 25, 2007 a provisional election was made with traverse to prosecute the invention of group II, claims 1-2, 4-13. Affirmation of this election must be made by applicant in replying to this Office action. Claim 3 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 6 and 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 6, the claim recites "single reader" and "single writer". It is unclear what these terms mean because they are not supported in the specification.

Regarding claim 9, the phrase "appropriate discard policies" is unclear because the limitation of the claim cannot be ascertained from the wording of the claim what policies are appropriate.

Regarding claim 10, it is unclear how "said scheduling step occurs in accordance with an AGE flow database". The specification does not support this limitation.

Regarding claim 11, "flow context" is recited more than two time in the claim. It is unclear which "flow context" is recited in last line.

Any claim not specifically addressed, above, is being rejected as incorporating the deficiencies of a claim upon which it depends.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-2 are rejected under 35 U.S.C. 102(e) as being anticipated by Russell et al. (US Patent No. 6,496,519; hereinafter Russell).

Russell discloses a frame based data communications network interfacing to a synchronous digital hierarchy network (see Abstract) comprising the following features.

Regarding claim 1, method of packet grooming and aggregation within an Ethernet over SONET/SDH system (EOS system) (see Abstract), said method comprising: delivering efficient bandwidth per data stream (see Ethernet channel mapped into VC12 containers recited in col. 7, lines 22-32); and mapping each said data stream (see "mapping data" recited in the Abstract) directly to a physical transport interface independent (see "directly into a synchronous digital hierarchy payload" recited in col. 2, lines 62-65) of any Layer 2 bridging or Layer 3 routing protocol (see "ATM cell or other intermediate carrier" recited in the in col. 2, lines 62-65).

Regarding claim 2, wherein said mapping step is flexible (Fig. 2) in that service flow is defined independent of any given physical Ethernet port or Sonet/SDH virtual concatenation groups (VCG) (Fig. 2, see converting data in both ways) so as to allow

flexible mapping of said service flow among said physical Ethernet ports and SONET/SDH VCG transport pipes (Fig. 2, see converting data in both ways) and to guarantee quality of service levels of service flow during said flexible mapping (see "quality of service" recited in col. 11, lines 35-43).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4-5, and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayward et al. (US Patent No. 6,222,848; hereinafter Hayward) in view of Geer et al. (US Patent Application Publication No. 2005/0025469; hereinafter Geer).

Hayward discloses a method and apparatus for routing data packets via SONET (see Abstract) comprising the following features.

Regarding claim 4, an Aggregation/Grooming Engine (AGE) for use within an Ethernet over SONET/SDH system (EOS system) (see Abstract), said AGE comprising: an ingress portion having an ingress header unit (Fig. 3, Ethernet receiver 218), for receiving data from an Ethernet MAC subsystem (see "receives Ethernet data packets" recited in col. 5, line 66 continues to col. 6, line 3); an ingress lookup engine (Fig. 3, packet distributor 214) including a corresponding ingress flow database (Fig. 3, associated table 240) and coupled to said ingress header unit (Fig. 3, packet distributor

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214); an ingress tag editor (Fig. 3, SONET transmitter 230) coupled to said ingress lookup engine (Fig. 3, packet distributor 214); and an ingress flow buffer unit (Fig. 3, buffer 248, queues 222A-222N) coupled to said ingress tag editor (Fig. 3, SONET transmitter 230) and an encapsulation engine (Fig. 3, SONET transport node channel add/drop 258); and an egress portion having an egress header unit (Fig. 3, SONET packet receiver 210) for receiving data from said encapsulation engine (Fig. 3, SONET transport node channel add/drop 242); an egress lookup engine (Fig. 3, packet distributor 214) including a corresponding egress flow database (Fig. 3, associated table 240) and coupled to said egress header unit (Fig. 3, SONET packet receiver 210); an egress tag editor (Fig. 3, SONET packet receiver 210) coupled to said egress lookup engine (Fig. 3, packet distributor 214); and an egress flow buffer unit (Fig. 3, queues 224A-224N) coupled to said egress tag editor (Fig. 3, SONET packet receiver 210) and said Ethernet MAC subsystem (Fig. 3, output path 220); wherein said ingress portion and said egress portion of said AGE (Fig. 3, transport node 200) provide grooming and aggregation functionality for said EOS system (see routing data recited in the Abstract) including label lookup (see looking up entry recited in col. 7, lines 50-60), flow buffering (see "queuing" recited in col. 2, lines 3-8), label editing (see "removed" and "appended" recited in col. 6, lines 47-49), and flow scheduling (see "scheduler" recited in col. 6, lines 18-22).

Regarding claim 5, wherein said ingress flow buffer unit and said egress flow buffer unit are multi-channel buffers (Fig. 3, queues 222A-222N and queues 224A-224N) where each buffers respective data flow for one service flow (Fig. 3).

Regarding claim 7, wherein said ingress portion and said egress portion form symmetric ingress and egress paths (Fig. 3).

Regarding claim 8, wherein said ingress lookup engine and said egress lookup engine are integrated into a single bi-directional lookup engine (Fig. 3, packet distributor 214) having a corresponding bi-directional flow database that integrates said ingress flow database and said egress flow database (Fig. 3, associated table 240).

Hayward does not disclose the following features: regarding claims 4 and 5, although Hayward discloses ingress and egress flow buffers (see paragraph above), Hayward does not disclose ingress and egress flow FIFOs.

Geer discloses systems and methods for storing a plurality of video streams (see the Title) comprising the following features.

Regarding claim 4, wherein FIFO is disclosed (see "FIFO" recited in para. [0132], page 8).

Regarding claim 5, wherein said ingress flow FIFO unit and said egress flow FIFO unit are multi-channel FIFOs (see "FIFO" recited in para. [0132], page 8) where each buffers respective data flow for one service flow (Fig. 3, DRAM).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Hayward by using features, as taught by Geer, in order to output or input data in the order of arriving time.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayward et al. (US Patent No. 6,222,848) in view of Geer et al. (US Patent Application

Publication No. 2005/0025469) and further in view of Van Eijndhoven et al. (US Patent Application Publication No. 2005/0021807; hereinafter Van).

Hayward and Geer disclose the claim limitations in paragraph 12 above. They do not disclose the following features: regarding claim 6, wherein said ingress flow FIFO unit and said egress flow FIFO unit each include only a single reader and a single writer.

Van discloses data processing system comprising the following features.

Regarding claim 6, wherein said ingress flow FIFO unit and said egress flow FIFO unit (see "FIFO" recited in para. [0057], pages 4-5) each include only a single reader and a single writer (see "one reader" and "one writer" recited in para. [0057], pages 4-5).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Hayward and Geer by using features, as taught by Van, in order to simplify the hardware and reduce cost.

14. Claim 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayward et al. (US Patent No. 6,222,848) in view of Buskirk et al. (US Patent Application Publication No. 2002/0191543; hereinafter Buskirk).

Hayward discloses a method and apparatus for routing data packets via SONET (see Abstract) comprising the following features.

Regarding claim 9, a method of packet grooming and aggregation within an Ethernet over SONET/SDH system (EOS system) (see Abstract), said method comprising: receiving a data packet (see "receives Ethernet data packets" recited in col.

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5, line 66 continues to col. 6, line 3; and “receiving SONET payloads” recited in col. 1, line 64 and col. 2, lines 11); providing an input client frame (see “encapsulated data packets” recited in col. 6, lines 1-9) from said data packet to a header unit (see “packet distributor 214” recited in col. 6, lines 7-9); extracting a search key (see “destination MAC address” recited in col. 7, lines 43-44) from said input client frame (see “ethernet data packet” recited in col. 7, lines 43-44) via said header unit (see “packet distributor 214” recited in col. 6, lines 7-9); correlating (see “refers to table 240” recited in col. 7, lines 50-53) said search key via a lookup engine (Fig. 3, packet distributor 214) to a match (see “matching” recited in col. 7, lines 50-54) in a flow database (Fig. 3, associated table 240) to determine flow context (see “identifier” and “source MAC address” recited in col. 7, lines 54-57); modifying said input client frame (see “overhead information appended” recited in col. 6, lines 47-51) via a tag editor (Fig. 3, SONET transmitter 230) according to said flow context (see “identifier” and “source MAC address” recited in col. 7, lines 54-57); buffering said input client frame via a flow buffer (Fig. 3, buffers 246-252, queues 222A-222N, queues 224A-224N, and queues 226A-226N); applying appropriate discard policies to said flow buffer (see how to discard data packet recited in col. 8, lines 57-65); and scheduling said input client frame via a scheduler of the flow buffer (Fig. 3, schedulers 228, 232, 236) for transmission into output channels (Fig. 3, optical fibres 206, 208, output path 220) according to output channel status (see “STS channel” recited in col. 8, lines 42-47).

Regarding claim 12, wherein said correlating step (see "refers to table 240" recited in col. 7, lines 50-53) occurs in accordance with a combined ingress table and egress table in a bi-directional lookup manner (Fig. 3, associated table 240).

Hayward does not disclose the following features: regarding claim 9, although Hayward discloses a flow buffer (see paragraph above), Hayward does not disclose a flow FIFO and scheduling said input client frame via a scheduler of the flow FIFO for transmission into output channels according flow quality of service parameters.

Buskirk discloses systems and methods for policing multiple data flows and multi-protocol data flows (see the Title) comprising the following features.

Regarding claim 9, wherein FIFO is disclosed (see "FIFO" recited in para. [0047], page 4); and scheduling said input client frame via a scheduler of the flow FIFO for transmission into output channels according flow quality of service parameters (see "data flow is monitored for conformance with a particular quality of service" recited in para. [0010], page 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Hayward by using features, as taught by Buskirk, in order to output or input data in the order of arriving time and make the most efficient use of the communication network for different services.

15. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayward et al. (US Patent No. 6,222,848) in view of Buskirk et al. (US Patent Application Publication No. 2002/0191543) and further in view of Bims (US Patent No. 6,788,658; hereinafter Bims).

Hayward and Buskirk disclose the claim limitations in paragraph 14 above. They do not disclose the following features: regarding claim 10, wherein said scheduling step occurs in accordance with an AGE flow database.

Bims discloses a communication architecture (see Abstract) comprising the following features.

Regarding claim 10, wherein said scheduling step occurs in accordance with an AGE flow database (see examining database for scheduling packet recited in col. 9, lines 27-30).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Hayward and Buskirk by using features, as taught by Bims, in order to prevent conflict between network elements that interfere each other (see Bims: col. 9, lines 30-31).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent Application Publication No. 2006/0133411 to Denton et al.

US Patent Application Publication No. 2001/0040896 to Frouin et al.

US Patent No. 6,909,720 to Willis.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Q. Tran whose telephone number is (571) 272-

9737. The examiner can normally be reached on Mon-Fri: 7:30 am - 5 pm, off alternative Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang B. Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TQT

KWANG BIN YAO
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Kwang Bin Yao', is written over the printed name and title.